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EXAMINER

PATEL, ASHOKKUMAR B

ART UNIT PAPER NUMBER

2154

DATE MAILED: 10/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/074,462

Applicant(s)

ZHANG ET AL

Examiner

Ashok B. Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07/13/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-67 is/are pending in the application.
- 4a) Of the above claim(s) 1-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 45-67 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-67 are subject to examination. Claims 1-44 are cancelled.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07/31/2006 has been entered.

Response to Arguments

3. Applicant's arguments filed 07/31/2006 have been fully considered but they are not persuasive for the following reasons:

Applicant's argument:

Claims 45-47 and 52:

"Daoud only discloses a hierarchy of 2 levels load balancers, not 3 levels as claimed by Claim 45."

"Daoud does not disclose or suggest a possible third or more levels of hierarchy. Daoud discloses a load balancer for a group of servers, but not for a group of groups - i.e. a "super group", as claimed in Claim 45. The Applicant has made an amendment to Claim 45, exchanging the term "server group index" with the more general term "resource group index" to make the term consistent with the rest of Claim 45 and the rest of the other claims."

Examiner's response:

Daoud teaches more than two levels of hierarchy of servers in the groups as well as more than two levels of load balancers.

Daoud clearly teaches at para. [0044] It is to be understood that any number of groups can be designated. The manner in which groups are designated can include static parameters such as processing speed, capacity, server proximity, etc. However, preferably the groups 510, 520, 530 are dynamically designated based on monitored performance of the individual servers. For example, where a "premium" server (e.g., 511) is not performing to a predetermined standard, it can be reclassified as a standard or low priority server (i.e., in group 530), whereas a standard server (e.g., 521) that has recently been upgraded can be reclassified as a premium server (i.e., in group 510). Likewise, the invention disclosed herein is not to be limited by the groups 510, 520, 530 shown in FIG. 5. For example, more or fewer groups can be used, servers can be further subdivided within the groups, the groups can be identified by means other than the labels "premium", "standard", and "low", etc."

For the clarification of the reference's teachings, first level of hierarchy is as claimed "a service index block" yielding " a first super group index" in response to the first service index " is as previously indicated Fig.6, element 620, second level of hierarchy is "a super group block" yielding " a first resource group index" in response to the "first super group index" is Fig.6, element 610, also as previously indicated, and the third level of hierarchy is, as indicated above and previously indicated in para. [0048] as explained through the hierarchy of load balancers administering the various server

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pools, that "servers can be further subdivided within the groups, the groups can be identified by means other than the labels "premium", "standard", and "low", etc."

Please note that the arguments presented including load balancers has nothing to do with the claim 45 as claim does not recite "load balancer."

Applicant's argument:

Claim 53:

"To generalize, Daoud discloses using information about the origination of the data packet to make a load balancing decision, but does not disclose using information about the destination of the data packet."

Examiner's response:

Please refer to Fig. 2, element 230.

Applicant's argument:

Claim 54:

"Daoud does not disclose any system that makes load balancing decision based on the history of service provided as claimed in Claim 54."

Examiner's response:

Please also refer to para.[0045] in addition to para.[0010]-[0012]).

Applicant's argument:

Claim 55:

Daoud does not disclose a plurality of tables each accessed in sequence, an output of each table being an input to the next table in the sequence, the first sequential table of the plurality of tables being configured to receive the first resource group index

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and the last sequential table of the plurality of tables being configured to provide the at least one resource index, as claimed in Claim 55.”

Examiner’s response:

Please refer to Fig.6 and response to claim 45 above.

Applicant’s argument:

Claims 48-51:

The Office Action then recites limitations of Claim 49 (though it incorrectly states they are limitations of Claim 48) that it says Daoud does not explicitly teach...”

Examiner’s response:

The Limitations of claim 49 are stated correctly as the dependents of claim 48. As explained in claim 45 above, and combined with the explicitly below indicated teachings of Romero, the combination teaches the claimed limitations of claim 49.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 45-47, 52-58 and 63-67 are rejected under 35 U.S.C. 102(e) as being anticipated by Daoud et al. (hereinafter Daoud)(US 2002/0087694 A1)

Referring to claim 45,

Daoud teaches a system for allocating resources to service requests comprising:

a service index block having a plurality of super group indexes, the service index block being coupled to receive a first service index corresponding to a service request and configured to provide a first super group index in response to the first service index; (Fig. 2, Fig. 6, element 620, page 5, para.[0047],” That is, the server index 600 contains the server ID 610 and a corresponding level of service 620, similar to the server index 400 in FIG. 4. However, in server index 600, the server ID 610 is indicated as a group of servers. That is, Servers A, B, and C, are providing a "premium" level of service, Servers D and E are providing a "standard" level of service, and Server F is providing a low-priority level of service. Thus for example, where the service tag 220 indicates that the requested level of service is "premium", the load balancer 300 directs the transaction 200 to any one of the servers 511, 512, 513 in the premium group 510.”)

a super group block having a plurality of server group indexes, the super group block being coupled to receive the first super group index and configured to provide a first resource group index in response to the first super group index; (Fig. 6, element 610, page 5, para.[0047])

a group block having a plurality of resource indexes, the group block being coupled to receive the first resource group index and configured to provide at least one resource index in response to the first resource group index, each resource index corresponding to one of a plurality of resources.(para. [0048],”It is understood that the load balancing schemes shown in FIG. 3 and FIG. 5 are illustrative of the apparatus and

method of the present invention and are not intended to limit the scope of the invention. Other configurations are also contemplated as being within the scope of the invention. For example, multiple load balancers can be networked to administer a single server pool or multiple server pools. Such a configuration allows a load balancer experiencing heavy use to transfer some or all of the transactions in bulk to another load balancer experiencing a lighter load. Or for example, a hierarchy of load balancers might administer the server pool. A possible hierarchical configuration could comprise a gatekeeping load balancer that directs transactions either to a load balancer monitoring a premium server pool or to a load balancer monitoring a standard server pool, and the individual load balancers can then select a server from within the respective server pool.")

Referring to claims 46 and 47,

Daoud teaches the system of Claim 45 wherein the at least one resource index is one resource index, the one resource index indicating a resource assigned to the service request, and wherein the resource is a server.(Fig. 5 and para. [0048])

Referring to claim 52,

Daoud teaches the system of Claim 45 further comprising a content analysis engine configured to receive at least a portion of a data packet and generate a service index based on at least one of domain name and URL pattern matching. (Fig. 2)

Referring to claim 53,

Daoud teaches the system of Claim 45 further comprising a lookup table coupled to receive at least a portion of a data packet and configured to lookup the first service

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index based on at least one of a destination IP, a destination port and a protocol corresponding to the data packet. (Fig. 2, element 230, para.[0025] and [0037])

Referring to claim 54,

Daoud teaches the system of Claim 45 further comprising a history table configured to receive the first service index and select a second resource index based on a persistence policy if a match is found in the history table.(para.[0010]-[0012])

Referring to claim 55,

Daoud teaches the system of Claim 45 wherein the group block comprises a hierarchical data structure using the first resource group index to produce the at least one resource index, the hierarchical data structure comprising a plurality of tables each accessed in sequence, an output of each table being an input to the next table in the sequence, the first sequential table of the plurality of tables being configured to receive the first resource group index and the last sequential table of the plurality of tables being configured to provide the at least one resource index. (Fig. 6)

Referring to claim 56,

Claim 56 is a claim to a method for allocating resources to service requests carried out by the system of claim 45. Therefore claim 56 is rejected for the reasons set forth for claim 45.

Referring to claims 57 and 58,

Claims 57 and 58 are claims to a method for allocating resources to service requests carried out by the system of claims 46 and 47. Therefore claims 57 and 58 are rejected for the reasons set forth for claims 46 and 47.

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Referring to claim 63,

Claim 63 is a claim to a method for allocating resources to service requests carried out by the system of claim 52. Therefore claim 63 is rejected for the reasons set forth for claim 52.

Referring to claim 64,

Claim 64 is a claim to a method for allocating resources to service requests carried out by the system of claim 53. Therefore claim 64 is rejected for the reasons set forth for claim 53.

Referring to claims 65 and 66,

Claim 65 is a claim to a method for allocating resources to service requests carried out by the system of claim 54. Therefore claim 65 is rejected for the reasons set forth for claim 54.

Referring to claim 67,

Claim 67 is a claim to a method for allocating resources to service requests carried out by the system of claim 55. Therefore claim 67 is rejected for the reasons set forth for claim 55.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 48-51 and 59-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daoud et al. (hereinafter Daoud)(US 2002/0087694 A1) in view of Romero et al. (hereinafter Romero) (US 2002/0129127 A1)

Referring to claims 48, 49, 50 and 51,

Daoud teaches the system of Claim 45 wherein the service index block further comprises a plurality of load balancing policy indexes, the service index block further configured to provide a first load balancing policy index in response to the first service index, the system further comprising a first load balancer coupled to receive the at least one resource index and the first load balancing policy index, select a first load balancing policy from among a plurality of load balancing policies based on the first load balancing policy index, and apply the first load balancing policy to the at least one resource index to select a resource and wherein the second load balancing policy is selected based on the first load balancing policy index, and wherein the second load balancing policy is configured independently of the first load balancing policy index. (Fig. 5, para. [0048] and [0047]).

Although Daoud teaches in para. [0048], "It is understood that the load balancing schemes shown in FIG. 3 and FIG. 5 are illustrative of the apparatus and method of the present invention and are not intended to limit the scope of the invention. Other configurations are also contemplated as being within the scope of the invention. For example, multiple load balancers can be networked to administer a single server pool or multiple server pools. Such a configuration allows a load balancer experiencing heavy use to transfer some or all of the transactions in bulk to another load balancer

experiencing a lighter load. Or for example, a hierarchy of load balancers might administer the server pool. A possible hierarchical configuration could comprise a gatekeeping load balancer that directs transactions either to a load balancer monitoring a premium server pool or to a load balancer monitoring a standard server pool, and the individual load balancers can then select a server from within the respective server pool.”, Daoud explicitly fails to teach the system of Claim 48 wherein the system further comprises a second load balancer, the super group block further configured to generate at least one additional resource group index in response to the first super group index, the second load balancer configured to select the first resource group index from among the first resource group index and the at least one additional resource group index based on a second load balancing policy.

Romero teaches a group block having a plurality of resource indexes, the group block being coupled to receive the first resource group index and configured to provide at least one resource index in response to the first resource group index, each resource index corresponding to one of a plurality of resources. (Figs. 1-3, para.[0030] and para.[0035],” [0035] It is also understood that the partition profile 300 shown in FIG. 3 is merely illustrative of one embodiment of a partition profile that can be used under the teachings of the invention, and is not intended to limit the scope of the invention thereto. For example, in another embodiment, the partition profile 300 may also include other servers (e.g., 220) and/or other partitions 160-162 and the corresponding configuration thereof (e.g., 330). Also for example, the partition profile 300 may include a department ID, a server ID, a server pool ID, etc. The assigned rank 340 may be included as part of

the corresponding configuration 330. The assigned rank 340 need not even be included as part of the partition profile 300, and indeed, the various data may be stored in separate profiles (e.g., a partition identification profile, a configuration profile, etc.). "a second load balancer, the super group block further configured to generate at least one additional resource group index in response to the first super group index, the second load balancer configured to select the first resource group index from among the first resource group index and the at least one additional resource group index based on a second load balancing policy.")

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to further enhance the system of Daoud, just in the manner Daoud suggested, by adding Romero's teachings such that the following advantages are realized as shown by Romero in para.[0030], "It is understood that the embodiments shown in FIG. 1 and FIG. 2 are merely illustrative of an environment in which the invention may be implemented. Other embodiments are also contemplated as being within the scope of the invention. In another embodiment, there may be multiple server pools 200. In yet another embodiment, there may be a combination of server pools 200 and individual partitioned servers 140, wherein the partitioned server itself is treated as a server pool. In yet another embodiment, there may be multiple load balancers 130 for balancing the load among alternate server pools 200. There can also be a hierarchy of load balancers 130, wherein a first load balancer passes the transaction to one of several load balancers, which then route the transaction 110 within a server pool 200 or within a server 140 (i.e., to the partition 160) wherein it makes

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possible to have hierarchical configuration comprising a gatekeeping load balancer that directs transactions either to a load balancer monitoring a premium server pool or to a load balancer monitoring a standard server pool, and the individual load balancers can then select a server from within the respective server pool.

Referring to claims 59, 60, 61 and 62,

Claims 59, 60, 61 and 62 are claims to method for allocating resources to service requests carried out by the system of claims 48, 49, 50 and 51. Therefore claims 57 and 58 are rejected for the reasons set forth for claims 48, 49, 50 and 51.

Conclusion

Examiner's note: Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashok B. Patel whose telephone number is (571) 272-3972. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A. Follansbee can be reached on (571) 272-3964. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Abp

LARRY D. DOMAGNIE
PRIMARY EXAMINER

